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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/472,688	12/27/1999	Richard A. Shimkets Ph.D	15966-534C-CIP1	9084

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EXAMINER
MORAN, MARJORIE A

ART UNIT	PAPER NUMBER
1631	19

DATE MAILED: 10/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/472,688	SHIMKETS PH.D ET AL.	
	Examin r	Art Unit	
	Marjorie A. Moran	1631	

-- The MAILING DATE f this c mmunication appears on the cover sheet with the corresp ndence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 May 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,9,10,12,14 and 19-53* is/are pending in the application.

4a) Of the above claim(s) *19-44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,10,12,14 and 45-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *17* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. All objections and rejections not reiterated below are hereby withdrawn.

Election/Restrictions

Claims 19-44 are again withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10.

This application contains claims 19-44 drawn to an invention nonelected with traverse in Paper No. 10. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

An action on the merits of amended claims 1-6, 9-10, 12, and 14, and new claims 45-53 follows.

Information Disclosure Statement

The information disclosure statement filed 7/31/02 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it lacks either a certification or fee, as required under 37 CFR 1.97 (c) and (e). Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for

purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

The letter filed with the IDS states that the references disclosed were cited in a search report for PCT/US00/35387. However, as set forth under 37 CFR 1.97 (e) requires that the references be cited in a "communication from a *foreign* patent office in a *counterpart foreign application* not more than three months prior to the filing of the information disclosure statement" emphasis added by the examiner.

As the PCT was filed in the US and the search performed in the US, the search report is not considered a "communication from a foreign patent office". In addition, PCT/US00/35387 claims priority to US application 09/472,865, which does not claim priority to either the instant application nor to any of the applications for which priority is claimed for the instant application. In addition, although the titles are similar, there is no evidence or statement anywhere that the disclosures of the PCT application and the instant application are "substantively similar", therefore PCT/US00/35387 does not appear to be a "counterpart" application by way of priority or a "substantively similar" disclosure. As the instant application and PCT/US00/35387 do not appear to be "counterpart" applications, the provisions of 37 CFR 1.97 (e) (1) do not apply, therefore applicant must filed either a certification, as set forth under 37 CFR 1.97 (e) (2) or pay a fee, as set forth under 37 CFR 1.97 (c).

The IDS filed 7/31/02 has been placed in the application file, but the information referred to therein has not been considered as to the merits.

Specification

The amendment filed 5/28/02 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: incorporation by reference of the contents of US application 09/443,199 is new matter. The originally filed specification disclosed and incorporated by reference 09/442,849, 09/442,149, and 06/109,024. Another application number was indicated by a blank space and identified only by inventor, title, and application date. No information was provided (e.g. attorney docket number or other specific identification) to indicate which application was intended to be included in the list of priority information on page 1 of the originally filed specification. As the instant application is a CIP of an application which itself claims priority to 09/443,199, then it is probable that the "contents" of newly disclosed 09/443,199 differ from that of the instant specification, and incorporation by reference of 09/443,199 introduces new matter.

Applicant is required to cancel the new matter in the reply to this Office Action. Applicant is advised that deleting the last line of the priority paragraph will overcome this objection.

Drawings

Applicant states that new drawings will be filed upon determination of allowability; as new drawings have not been filed, the objection is maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 4-6, 9, and 45 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a NEW MATTER rejection.

Nucleotides which are 10-50, 10-40, or 10-30 bases in length, and "wherein at least 10 contiguous bases include the nucleotide corresponding to position 26 of SEQ ID NO:509", as recited in claims 4-6, are new matter. Original claim 1 recited a "fragment" of a polynucleotide sequence, wherein the fragment comprised a polymorphic site, but did not specifically limit either the fragment size nor the site itself. Table 1 of the originally filed specification discloses that the polymorphic site of SEQ ID NO: 506 is at position 26, thus the combination of originally filed claim 1 and the disclosure of Table 1 provides support for a "fragment" comprising a nucleotide

corresponding to position 26. Originally filed claims 7-8 limited the polynucleotide of claim 1 to be 10-50 or 1-40 bases in length. The originally filed specification teaches, on pages 4 and 6, that inventive polynucleotides may be 10-51, 10-40, or 10-30 bases in length, thus the originally filed claims and specification provide support for sequences which are 10-50, 10-40, or 10-30 nucleotides long. However, the neither the originally filed specification or claims teach or recite any nucleotide sequence comprising " least 10 contiguous bases" wherein the 10 contiguous bases include either a polymorphic site or, specifically, a nucleotide corresponding to position 26 of SEQ ID NO: 506. The response filed 5/28/02 does supply any direction to the originally filed specification or claims which support the newly recite limitations of claims 4-6, and none is apparent, as set forth above, therefore amended claims 4-6 recite new matter.

A polynucleotide "comprised within" a nucleic acid encoding a polypeptide homologous to a keretinocyte growth factor" (KGF), as recite in claim 9, and an oligonucleotide which "identifies a nucleic acid encoding a polypeptide homologous to a keratinocyte growth factor", as recited in claim 45, are new matter.

Original claim 9 recited a polynucleotide "derived from" a nucleic acid encoding one of a list or proteins. KGF was not among those listed in original claim 9. Original claim 17 recite an oligonucleotide "which identifies" a polypeptide "related to" one of a list of proteins. KGF was not recited in the list of original claim 17. The originally filed specification teaches, on page 4, that a polymorphic sequence may "associated with" a polypeptide in a protein family , wherein the protein may be one disclosed in Table 1.

The originally filed specification also discloses, on page 6, that a polymorphic sequence may be "associated with" a nucleic acid encoding a peptide, wherein the peptide is "related to" a disclosed protein family. Table 1 discloses that one of the proteins "associated with" SEQ ID NO: 506 is KGF. However, a teaching for "relatedness" and "association" is NOT a teaching that that SEQ ID NO: 506 is "comprised within" a nucleic acid which is known to encode KGF, nor is it a teaching for identification of a nucleic acid which is known to encode KGF. The originally filed specification discloses, on page 7, that one aspect of applicant's invention is an isolated polypeptide comprising a polymorphic site, wherein the polypeptide is encoded by a polynucleotide comprising a polymorphic site as in Table 1. Table 1 merely discloses that SEQ IDNO: 506 is "associated with" or shows homology to nucleic acids which encode KGF and FGF. Nowhere does the originally filed specification disclose that SEQ ID NO: 506 is contained within a nucleic acid sequence which is known to encode KGF, nor does the originally filed specification disclose that SEQ ID NO: 506 is may be used to identify a nucleotide known to encode KGF. The response filed 5/28/02 does not point to support in the originally filed specification or claims for the new limitations of claims 9 and 17, and none is apparent, as set forth above, therefore claims 9 and 17 recite new matter.

35 U.S.C. 112, Written Description Rejection

Amended claims 1-6, 9-10, 12, and 14, and new claims 45-53 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in

the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification discloses SEQ ID NO: 509. A sequence consisting of SEQ ID NO: 509 meets the written description provisions of 35 USC 112, first paragraph. However, claims 1-6, 9-10, 12, 14, and 45-53 recite open claim language and are directed to encompass gene sequences, sequences that hybridize to SEQ ID NO: 509, fragments of SEQ ID NO: 509, corresponding sequences from other species, mutated sequences, allelic variants, splice variants, sequences that have a recited degree of identity (similarity, homology), sequences "contained within" larger sequences, and so forth. None of these sequences meet the written description provision of 35 USC 112, first paragraph. The specification provides insufficient written description to support the genus encompassed by the claim. In particular, it is noted that larger sequences comprising "fragments" or short lengths of a nucleotide sequence represent a vast variety of nucleotides such that the class cannot be readily envisioned by one skilled in the art. As genomic sequences comprise introns, sequences which hybridize to SEQ ID NO: 509, or a portion thereof, may bear no relationship to SEQ ID NO: 509 or any other sequence described by the instant specification, thus the genus represented by sequences which hybridizes to SEQ ID NO: 509, or its complement, or any fragments thereof, is not described by the instant specification. The specification does not describe ANY keratinocyte growth factor. The specification discloses that SEQ ID NO: 509 is "related to" a KGF precursor, in Table I, but does not otherwise describe, by sequence, structure, or any other characteristics, a KGF protein or any homologs to KGF. The specification does not describe any nucleic acid sequence encoding any KGF or homolog, anywhere.

The Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The

specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

With the exception of SEQ ID NO: 509 itself, the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides and/or proteins, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

> ...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.* , 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli* , 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood* , 107 F.3d at 1572, 41 USPQ2d at 1966.
>
> An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. *Fiers v. Revel* , 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id. at 1170, 25 USPQ2d at 1606.

> The name cDNA is not itself a written description of that DNA; it conveys no distinguishing information concerning its identity. While the example provides a process for obtaining human insulin-encoding cDNA, there is no further information in the patent pertaining to that cDNA's relevant structural or physical characteristics; in other words, it thus does not describe human insulin cDNA. Describing a method of preparing a cDNA or even describing the protein that the cDNA encodes, as the example does, does not necessarily describe the cDNA itself. No sequence information indicating which nucleotides constitute human cDNA appears in the patent, as appears for rat cDNA in Example 5 of the patent. Accordingly, the specification does not provide a written description of the invention of claim 5.

Therefore, only sequences consisting of SEQ ID NO: 509, but not the full breadth of the claim (or none of the sequences encompassed by the claim) meets the written description provision of 35 USC 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115.)

Claim Rejections - 35 USC § 101

Amended claims 1-6, 9-10, 12, and 14, and new claims 45-53 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by a specific, substantial, and credible utility or, in the alternative, a well-established utility.

Applicant's arguments filed 5/28/02 have been fully considered but they are not persuasive. Applicant argues that SEQ ID NO: 509 is highly homologous to, and conserved nucleic acid of members of the KGF protein family, and thus has utility based on the utility of KGF proteins. In response it is noted that the specification only

discloses that SEQ ID NO: 509 is "related to" a KGF precursor, in Table 1. Table 1 also discloses that SEQ ID NO: 509 is also "related to" FGF. This is NOT a teaching that SEQ ID NO: 509 was known at the time of invention to encode all or a part of a KGF protein, or specifically represents a "conserved nucleic acid" (region or domain?) of KGF. As previously set forth in the office action of 11/26/01, the SwissProt sequence for KGF is disclosed to be 194 amino acids long whereas SEQ ID NO: 509 would encode a peptide of only 17 amino acids. In addition, SEQ ID NO: 509 does not comprise a start codon, therefore it is doubtful if SEQ ID NO: 509, alone, encodes any peptide. As SEQ ID NO: 509 does not comprise a start codon, it does not, in itself, comprise an ORF. It is possible that SEQ ID NO: 509 is a SNP "based on" a larger protein (gene product), as set forth on page 12. A search of the prior art confirms that SEQ ID NO: 509 is homologous to a portion of a polynucleotide encoding KGF (see Figure 25 of WO 9611951), but there is no evidence that anywhere that SEQ ID NO: 509 is indeed part of a larger sequence which is known to encode a KGF, or by itself, represents a conserved domain within KGF. Also as previously set forth, homology alone is not evidence that a nucleic acid encodes all or a portion of KGF. Even if SEQ ID NO: 509 does encode a portion of KGF, no utility has been set forth for that portion encoded by SEQ ID NO: 509. As SEQ ID NO: 509 has no start codon, it, by itself, cannot be translated; i.e. no peptide can be produced directly from SEQ ID NO: 509. For all of the reasons set forth above, the examiner maintains that SEQ IDNO: 509 does not have utility based on an encoded protein or peptide.

Applicants further argue in the response filed 5/28/02 that sequences containing polymorphisms may be used in forensics, paternity testing, and in tracking the past migration history of modern humans, As previously set forth, the uses of forensic identification and paternity testing are generic to any nucleic acid comprising a polymorphic site and are not specific to elected SEQ ID NO: 509. The same is true for tracking past migration patterns of humans; in addition, further research would have to be performed to determine if the specific polymorphic site represented by SEQ ID NO: 509 IS a site conducive to such tracking. For these reasons, the arguments with regard to utility in forensics, paternity testing, and in tracking human migratory patterns are not persuasive.

For the reasons set forth above, the examiner maintains that the claims do not have a specific, substantial, and credible utility, or a well-established utility.

Claims 1-6, 9-10, 12, and 14, and new claims 45-53 are also rejected under 35 U.S.C. § 112, first paragraph. Specifically, since the claimed invention is not supported by a specific, substantial, and credible utility or a well-established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention.

Conclusion

Claims 1-6, 9-10, 12, 14, and 45-53 are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marjorie A. Moran whose telephone number is (703) 305-2363. The examiner can normally be reached on Monday to Friday, 7:30 am to 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (703) 308-4028. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to a patent analyst, Tina Plunkett, whose telephone number is (703) 305-3524.

Marjorie A. Moran
Examiner
Art Unit 1631

September 30, 2002

JOHN S. BRUSCA, PH.D
PRIMARY EXAMINER